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TRANSPARENT SOLAR CELLS WITH MULTI-EXCITONS

“Transparent multi-exciton solar cells” is a new type of solar cell that has been developed by scientists at the University of Oxford and the California Institute of Technology (Caltech). The results of the study were published in the journal *Nature Photonics* in 2021.

These transparent solar cells have a unique structure that allows them to convert solar energy into electricity while maintaining their transparency. The structure of the elements is based on the use of multi-excitons, which are electron-hole pairs formed during the absorption of photons of light.

Multi-excitons tend to decay into electrons and holes, which move in different directions and cannot be effectively used to generate electricity. In a new type of solar cell, multi-excitons are captured and stored inside the cell thanks to special quantum wells that ensure their stability.

This approach allows for a high light-to-electricity conversion rate, making these solar cells more efficient than traditional transparent solar panels. In addition, the new elements can be used in building windows without losing transparency, making them more attractive for commercial use.

It should be noted that at present the efficiency of these cells is still lower than that of traditional solar panels, and further work is required to improve them. However, the development of new transparent multi-exciton solar cells represents an important step towards more efficient use of solar energy.